Computer-aided limit states analysis of bridge abutments

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ABSTRACT

This paper presents a computer program developed for limit states analysis of abutments. The program can perform both structural and geotechnical analysis of bridge abutments and check their resistances in compliance with limit states design criteria. In the program, the earth pressure coefficient for the backfill soil is calculated as a function of abutment's lateral non-linear displacement. Therefore, for abutments partially restrained against lateral movement, an earth pressure coefficient less than that of at-rest conditions may be obtained. This may result in a more economical design.

KEYWORDS

Bridge; abutment; foundation; limit-state-design; soil-structure-interaction; optimization